REMARKS/ARGUMENT

Claims 1-9, 11-14, 21, and 22 were pending. Claims 1, 2, and 22 have been amended. Claims 23-25 have been added. Accordingly, claims 1-9, 11-14, and 21-25 presently are pending.

The Examiner's courtesy in conducting a personal interview with Applicant and her representative is acknowledged with appreciation. The interview included a discussion of the pending claims and a proposed amendment that the Examiner agreed would remove Lindahl from the applicable prior art. Applicant's proposed amendment also addressed the outstanding § 112 issues. The discussion also addressed concerns regarding the expression of weight and weight/volume percentages in the claims and the specification. Applicants also indicated that references would be supplied regarding inactivation of enzymes recited in the claims.

In the Office action, claims 5 and 6 have been rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter not enabled by the specification. The Examiner asserts that the specification provides no description as to how the malted cereal is treated to destroy or inactivate essentially all β-glucanase activity. Applicant respectfully disagrees. The present specification discloses that β-glucanase activity can be destroyed by heat treatment. See page 12, lines 31-33. Further, Applicant has disclosed that β-glucanase is less stable to heat than α-amylase. Applicant also discloses that the germination step provides an opportunity to produce cereals of reduced β-glucanase activity. See page 3, lines 4-28. Accordingly, Applicant submits that one of skill in the art would be able to make and use the invention as recited in claims 5 and 6 based on Applicant's disclosure.

In addition, Applicant submits with this Amendment copies of two articles from the brewing art literature regarding the heat labile nature of β-glucanase. Briggs et al. discloses parameters of heat inactivation for β-glucanase. See pages 104-105. Similarly, Brunswick et al. discloses that β-glucanase is heat labile. See page 186. Brunswick also discloses that β-glucanase activity during germination of barley begins to develop only after day three. See Fig. 1. As noted above, Applicant discloses that incomplete or partial germination is another method of providing cereal with reduced β-glucanase activity. See Fig. 1. Accordingly, Applicant respectfully submits that the present disclosure enables one of skill in the art to make and use the invention as recited in claims 5 and 6.

Claims 1-9, 11-14, 21, and 22 have been rejected under 35 U.S.C. § 112, first paragraph as containing subject matter that was not described in the specification, and under 35 U.S.C. § 112, second paragraph, as being indefinite. Independent claims 1 and 22 have been amended for clarity, and are submitted as complying with 35 U.S.C. §112, first and second paragraphs. With respect to

the recitation of forming a slurry containing from 10% to 30% by weight of cereal, support in the specification is found on page 4, lines 18-20. Further, Applicant notes that weight/weight percent and weight/volume percent are standard laboratory expressions of concentration. Weight/weight percentages are measured in grams per hundred grams. Weight/volume percentages, as used in Examples 1 and 2, are measured in grams per 100 milliliters. (The present disclosure uses metric units throughout.) Withdrawal of the rejections respectfully is solicited.

Claims 1, 11-14, and 22 have been rejected under 35 U.S.C. § 102(b) as being anticipated by WO95/07628 to Lindahl et al. Claims 2-9 and 21 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Papazian in view of Lindahl et al. Applicant respectfully traverses the rejection.

The claims have been amended along the lines discussed during the Interview. The claims are submitted as distinguishing over the cited prior art. As the Examiner agreed during the Interview, the claim amendments distinguish the present invention over the Lindahl reference, since the process disclosed by Lindahl requires the absence of a protein degrading enzyme.

The application respectfully is submitted as being in condition for allowance.

Respectfully submitted,

Peter F. McGee
Registration No.: 35,947
OSTROLENK, FABER, GERB & SOFFEN, LLP
1725 K Street, N.W.
Washington, D.C. 20006
Telephone: (202) 457-7785

APPENDIX B

VERSION WITH MARKINGS TO SHOW CHANGES MADE

37 C.F.R. § 1.121(b)(iii) AND (c)(ii)

CLAIMS:

1. (Amended) A process for the production of a cereal wort or beer having a high content of soluble β-glucan of more than 0.2 wt% from a cereal or mixture of cereals in which the β-glucanase activity of any ingredient employed in the process [lacks β-glucanase activity sufficient to] will not decrease soluble β-glucan by more than 20 wt% compared to the yield from the corresponding source of non-germinated cereal or mixture of cereals, the process comprising the steps of:

forming an aqueous cereal slurry containing from 10% to 30% by weight of at least one wet or dry milled cereal; and

mashing the slurry at a temperature above 50°C in the presence of at least one starch degrading enzyme and at least one protein degrading enzyme.

2. (Amended) The process of claim 1 [for the production of a cereal beer having a high content of soluble β-glucan from a cereal or mixture of cereals], further comprising the following steps:

[a. forming an aqueous cereal slurry containing from 10% to 30% weight/volume of at least one wet or dry milled cereal which slurry lacks β-glucanase activity sufficient to decrease soluble β-glucan by more than 20 wt% compared to the yield from the corresponding source of non-germinated cereal or mixture of cereals;

b. mashing the slurry at a temperature above 50°C in the presence of at least one starch degrading enzyme, and, optionally, at least one protein degrading enzyme;

c.] cooling the mashed slurry to a temperature below 50°C; and

[d.] removing insoluble material to form [a] the cereal wort[;

e. boiling the wort with hops at conditions sufficient to destroy all enzymatic activity, thereby forming a boiled wort;

f. cooling the boiled wort to room temperature or lower;

g. adding yeast to the boiled wort; and

h. fermenting the mixture to produce a cereal beer having a high content of soluble β-glucan].

7. (Amended) The process of claim [2] 1 wherein the mashing temperature is from 54 to 65°C.

8. (Amended) The process of claim 2, wherein the process conditions are controlled such that more than 50% of the soluble β-glucan contained in the cereal is preserved in the [final product] cereal wort.

9. (Amended) The process of claim [2] 1, wherein the starch degrading enzyme is amylase, optionally in combination with pullulanase or amylogucosidase or both.

21. (Amended) The process of claim [2] 22 in which the cereal is barley or oats or a mixture thereof.

22. (Amended) A process for the production of a cereal wort or beer having a high content of soluble β-glucan of more than 0.2 wt% from a cereal or mixture of cereals, the process comprising the steps of:

utilizing enzymes [in which the enzymes present] during the process having [lack sufficient] β-glucanase activity sufficient only to eliminate from the cereal or mixture of cereals not more than 50% of soluble β-glucan which is contained before the process is effected in the cereal or mixture of cereals [before the process is effected].